

**Title: The Long Island Tick Crisis: An Educational Forum for Educators, Parents, the Agricultural Tourism Business, Agricultural Producers, and the General Public**

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**Abstract**

Ticks continue to be a top pest priority for many people on Long Island because of their serious impacts on personal health, recreation and outdoor work environment, plus the concerns over heavy pesticide use and impacts on water quality. Agritourism continues to expand at a phenomenal rate and with that expansion of pick your own operations, corn mazes etc., there exists an increased potential for contact between ticks and agritourists, especially children. These agritourists may not have previous experience with ticks and personal protection if they are coming from the city or from urbanized parts of Nassau or are from off Long Island. Another area of great concern is the potential for the explosive spread of the recently discovered invasive long horned tick. These forums are geared to address all of these concerns plus to emphasize personal protection, comprehension of various tick ecologies and the impact that makes on keeping property safer, and how agricultural businesses can improve and assist in education of clientele and personal safety. They are also geared to answer all questions attendees might present. To this end, 15 education forums were scheduled. Resources presented included tick identification cards, magnifiers, tweezers, tick checklists for the property, Tickwise flyers with tick information, and factsheets on alpha-gal syndrome and Powassan Virus. Preserved tick specimens were available at forums for perusal.

**Background and justification:**

Homeowners are intolerant of tick bites and often resort to pesticide treatments with no pre-application scouting or treatment threshold. Frequently, the goal is to achieve an unrealistic zero tick population for their properties. When addressed with landscape options such as reducing leaf litter, invasive plants which retain humidity, and plant debris in order to reduce tick, deer and rodent harborage, a majority of homeowners remain solely focused on a product driven solution. The landscaping and vegetation management solutions are often perceived as labor intensive, expensive, and ineffective. The enormous increases in tick populations are largely driven by ever increasing white-tailed deer populations. This is especially true for the lone-star tick, a southern species that has been steadily expanding northward into New York and southern New England under warming climate conditions. This is a very aggressive species that actively seeks its hosts, traveling up to 60 feet in pursuit of a host. All stages of the tick (larvae, nymphs, and adults) feed on large mammals, especially deer, and are readily attracted to humans. The densities of this tick species can be very high, and it is not uncommon to acquire dozens of ticks from regular backyard activities. The nymphs and the tiny larvae of this species (often

**mistakenly called “chiggers”) emerge during the summer in very large numbers, and it is this species that are likely driving the explosion in the private pest control industry in the Northeast. As part of the conversation we have heard at our workshops here in Suffolk County, many people, especially on the East End of Long Island, are paying for a service to spray their private properties as often as weekly to keep ticks at bay. Many of the properties being treated for ticks are near waterways, estuaries and wetlands. When consumers were asked, “what products are they spraying?”, most did not even know. This means that there may be risks associated with repeated pesticide treatments that they also do not know about or have not been scientifically studied. Such a cavalier attitude can result in misapplications of products, poor tick control and lasting environmental damage.**

**Agritourism and agriculture in general support the 2.9 billion dollar Suffolk County tourism industry, which employs upwards of 27, 000 individuals.**

**(<http://www.suffolkcountyny.gov/Portals/0/ecodev/Economic%20Development/Ecodev%20pdfs/AgFlver.pdf>)**

**Most of those employed in agritourism are working outside and the clientele who participate in recreational activities, pick your own fresh produce, apple and pumpkin picking, corn mazes and cut your own Christmas tree operations are necessarily exposed to tick infested areas. In addition, many farms and nurseries, farming museums and municipalities have festivals in early autumn that not only impact individual tick exposure but also school or other large groups. There are upwards of 60 large events like this listed by the Long Island Convention and Visitors Bureau each year. An incident where multiple people encounter ticks or tick bites at the same time may result in bad publicity of a particular venue or result in poor attendance at subsequent events resulting in economic loss. Tick exposure in agricultural settings can also result in lost work time or poor employee retention. Education and outreach at point of sale is needed but there is a very delicate balance between awareness and instillation of fear to the point of avoidance. This requires message finesse and proper timing on the part of the agribusiness involved.**

**Learning objectives:**

**Learning objectives: TWO HOUR PROGRAM: Recognizing different types and individual biology of ticks including the invasive Asian Long Horned Tick, best repellents for different age groups, how to judge your repellent using the EPA site “rate my repellent”, targeting children and agritourists for tick education including the potential for creation of a coloring book for adults and children, clarifying the confusion concerning different tick borne diseases or syndromes such as alpha gal, personal and home landscape protection, proper protection when visiting natural sites, sites that are inherently more likely to have a high tick population (Nassau or Western Suffolk versus Central or Eastern Suffolk) or agritourism sites, e.g., pick your own, corn mazes, etc. and how the agriculture business community can prepare for and mitigate tick related issues. Pitfalls and misconceptions of product use against tick populations and how to construct an individualized “tick preparedness program” will be covered. Time was reserved at end of program for audience questions and concerns (this was understandably popular with the audience members).**

**Procedures: Methods and materials for each objective including the evaluation component.**  
The presentation was divided into the following units:

**Section one:** Addressed how to identify a tick compared to insects, what the three most common ticks on Long Island are, their biology and the general lifecycle of ticks. Section one also addressed the topic of chiggers and their presence or absence on Long Island, alpha gal syndrome and the recently discovered Asian long horned tick and how they differ from the typical ticks found locally. Section two addressed safe tick removal, precautions when working outdoors or doing outdoor recreation, dealing with tick exposure to gear and clothing, personal protective equipment, and checking yourself for ticks. Section three included repellents (choice and safe use), scouting ticks in the landscape including DIY tick flagging device construction directions, likely location of ticks in the landscape on a type of tick basis, tick population dynamics and pesticide use, human influence on tick microclimates, influence of plant choice/presence on tick populations, natural tick control products and efficacy, deer fencing, best strategies for tick reduction in the landscape, tick borne diseases, which diseases are transmitted by what ticks, and general information on these diseases. Section four addressed tick awareness as a component of the agritourism industry, messages to customers, how to educate without frightening away customers, using children's activities such as coloring books to enhance awareness, key times to involve local media, timing of messages, feedback, do's and don'ts of raising tick awareness, being mindful not to diagnose or dispense medical information or tick removal suggestions unless they come from trusted sources such as universities etc., sample messages for Twitter or other social media and top tick myths.

Following the completion of each section of the lecture, the program was paused and participants filled out a section of the following evaluation sheet:

**PUBLIC TICK FORUM EVALUATION SHEET   Your Zipcode**

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**Estimate of the number of times you have encountered a tick in YOUR HOME setting in the past year**

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**Estimate the number of times you have encountered a tick in sites other than your home setting in the past year.**

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**Make a choice identifying yourself as Educator, Parent, Agricultural Tourism Industry, Agricultural Producer, General Public, landscape professional, other. You can choose more than one.**

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**Section One:**

**Did you learn a little or a lot**

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**Could you teach something about ticks to someone else as a result, yes or no**

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**Could convince them to change their behavior as a result of your teaching, yes or no**

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**Section Two:**

**Did you learn a little or a lot**

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**Could you teach something about ticks to someone else as a result, yes or no**

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**Could convince them to change their behavior as a result of your teaching, yes or no**

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**Section Three:**

**Did you learn a little or a lot**

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**Could you teach something about ticks to someone else as a result, yes or no**

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**Could convince them to change their behavior as a result of your teaching, yes or no**

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**Section Four:**

**Did you learn a little or a lot**

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**Could you teach something about ticks to someone else as a result, yes or no**

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**Could convince them to change their behavior as a result of your teaching, yes or no**

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**8. Results and discussion:**

**The general public was 90% of our audience members. The average number of times that a tick was encountered at the home landscape setting during the past year was 3, and the average number in a setting other than the home was 7 (this is lower than expected but due to the wetter weather, lone star ticks were not as numerous this autumn.)**

**The impact of the public forums was manifold. Most participants wrote that they learned a lot in all sections except for section four, which was agribusiness centered and covered top tick myths. Here 25% wrote that they learned a lot. This may be a reflection of the fewer numbers of audience members involved in the agritourism trade. At this point, too, participants had already learned about the myths so it was a review.**

**All participants felt they could teach something to someone else as a result of all four sections so this was a very positive outcome. When it came to being able to convince others of a behavioral change as a result of their teachings, the result was mixed depending on the section. In section one, 63% of respondents felt they could effect a behavioral change as result of their teaching. For section two, 47% felt they could teach to the point where a behavioral change occurred. For section three, 52% felt they could teach so that a behavioral change occurred and in section four only 24% felt they could change behavior with their teaching. Again, the fourth section was primarily concerned with agritourism so many of the audience members may have felt it did not pertain to them or felt uncomfortable with changing behavior they knew little about.**

**These numbers will change as we complete the rest of our forums through the end of February and an update on numbers will be reported then.**

**The major impact of the forums is focused on citizens, particularly with respect to use of personal repellents, and use of products to treat home landscapes and the way in which these products were used. Changes in behavior concerning pesticide use were promised by show of hands in 100% of audience members, a boon for water quality, and in repellent use by 74%. There was also awareness raised for 100% of participants concerning the Asian long horned tick. Out of audience members concerned with agritourism, 30% already had some form of tick awareness in place for clientele but another 40% by show of hands indicated that they would strongly consider instituting or improving tick awareness.**

**Again, these numbers will change as we complete the rest of our forums through the end of February and an update on numbers will be reported then. We hope to capture more of the Agritourism audience at that time.**